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FUNGICIDAL SCREENING TESTS FOR THE
CONTROL OF DECAY IN FLORIDA ORANGES //

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FUNGICIDAL SCREENING TESTS FOR THE CONTROL OF DECAY IN FLORIDA ORANGES

This report, the second on the subject of screening tests with decay inhibitors appearing in this series of office reports, gives an accounting of tests made with fungicidal or fungistatic compounds on oranges during the shipping seasons of 1948-49 and 1949-50.

The fruit used in these tests, as well as that used in the past, was produced in the same groves, hence, only annual differences in keeping quality are to be expected. The methods followed during these two seasons were essentially the same as those described in the first accounting that appeared in H.T.&S. Report No. 201. For the most part, the fruit was subjected to the ethylene treatment for 48 or more hours - to accelerate the development of stem end rot - before the compound under test was applied. Whenever this phase of the procedure was reversed or when the ethylene treatment was omitted it is so indicated in the tabular data. Inasmuch as the experimental procedure was outlined in considerable detail in H.T.&S. Report No. 201, it seems unnecessary to repeat it here. However, the abbreviations and symbols used throughout the report are again explained at the top of page one of the tabulations to aid in a rapid appraisal of the results obtained.

While a few compounds gave excellent control of decay, most of the promising ones caused severe injury to the peel, thus indicating that some change, either in their composition, formulations or in the method of application, is called for. Several compounds gave good control for 10 to 14 days but failed to suppress decay during the third week, thus suggesting a transitory action of insufficient duration on the causal organisms. Some of the compounds that gave outstanding results in screening tests were later found to be far less effective when subjected to large-scale tests.

The more promising compounds that are now available in sufficient quantity are being subjected to large-scale tests and are to be reported in detail elsewhere.

Perhaps the compound of greatest immediate practical application is the mixture of 2% Sodium-o-phenyl phenate and 1% Hexamine. The former, long known to be an effective decay inhibitor, is prone to cause severe rind injury; the latter apparently has little if any effect on decay or on the rind. Yet the addition of Hexamine to the Sodium-o-phenyl phenate solution reduced rind injury that normally follow; the application of Sodium-o-phenyl phenate almost to the vanishing point, without impairing its decay-inhibiting properties. When the treating solution was maintained within the range of room-to-tepid temperatures, practically no rind injury occurred; however, when the solution was applied at temperatures of 120 degrees or slightly above, the temperature range commonly used in the "color-added" treatment, severe rind injury resulted. This mixture is being used to a limited extent in commercial citrus operations in Florida where it seems worthy of general use under careful supervision.

The most effective decay inhibitors failed to prevent rots developing in abrasions or wounds made after the application of the toxicant.

CITRUS DECAY CONTROL OBTAINED IN
SCREENING TESTS WITH VARIOUS CHEMICALS
DURING THE 1948 -'49 AND 1949 -'50 SEASONS

KEY:

- A - - signifies excellent control of decay; check 10 times as much or more decay as treated lots.
 B - - signifies good control of decay; check 5 to 9 times as much decay as treated lots.
 C - - signifies fair control of decay; check 2 to 4 times as much decay as treated lots.
 D - - signifies poor to negligible control of decay; check less than 2 times as much decay as treated lots.
 F - - signifies fumigant, applied in 18 cu. ft. chamber.
 DNR - signifies fruit dipped but not rinsed afterwards.
 DR - signifies fruit dipped and rinsed afterwards.
 P - - signifies powder applied with brush.
 KADS - signifies potassium acid aldehyde sulfonate.
 W - - signifies water.
 Al - - signifies alcohol.
 O - - signifies organic solvent other than alcohol.
 WD - - signifies dispersed in water.
 ALD - signifies dispersed in alcohol.
 T - - signifies talcum powder.
 WWE - signifies water wax emulsion.
 E - - signifies emulsion.
 PW - - signifies paper wrap.
 NE - - signifies no ethylene.
 EB - - signifies ethylene before treating.
 EA - - signifies ethylene after treating.
 * - - signifies rind injury at higher concentrations.
 ** - - signifies rind injury at all concentrations.

Our Acces- sion No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1485	5-Bromosalicylaldehyde oxime	5	EA	DNR	Al	A**
1249	2-Chloroallyl carbanilate	5	EB	DNR	Al	A**
1395	4-Chloro-2-phenylphenol	5	NE	DNR	Al	A**
1639	Ethyl ethylthionocarbamate	5	EA	DNR	Al	A
1313	2-(2-Methoxyethoxy)ethyl carbanilate	5	EB	DNR	Al	A**
1098	2-Methoxyethyl carbanilate	5	EB	DNR	Al	A**
1312	1-Methoxy-2-propyl carbanilate	5	EB	DNR	Al	A*
1660	Propyl benzoylthionocar- bamate	5	EB	DNR	Al	A
1594	Pyrrolidine	5	EA	DNR	W	A
1594	Pyrrolidine	50cc	EA	F	--	A*
518	Tetrachlorophenyl propionate	5	EB	DNR	W	A**
13 + 1616	Sodium-o-phenyl phenate + Hexamine	2+1	EA	DNR	W	A

Our Acces- sion No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1526	Trichlorethane	50cc	EB	F	--	A
1536	Urea-boric acid, reac- tion product sample #1	5	EA	DNR	W	A
1537	Urea-boric acid, reac- tion product sample #2	5	EA	DNR	W	A
1537	Urea-boric acid, reac- tion product sample #2	5	NE	DNR	W	A
1537	Urea-boric acid, reac- tion product sample #2	5	EA	DNR	W	A
639	Allyl carbanilate	5	NE	DNR	Al	B
1588	Allyl carbanilate (Agr. Fung. #1)	5	EB	DNR	WWE	B*
1555	2-Bromo-4-Phenylphenol (practical)	5	EA	DNR	Al	B**
1249	2-Chloroallyl carbanilate	5	EB	DNR	Al	B**
1029	2-Chloroethyl carbanilate	5	EB	DNR	Al	B**
1317	3-Chloro-2-hydroxypropyl carbanilate	5	EB	DNR	Al	B**
1649	4-Chloro-2-isopropyl- phenol	5	EA	DNR	Al	B**
1320	3-Chloropropyl carbanilate	5	EB	DNR	Al	B**
1483	2,2'-Dihydroxybenzo- phenone	5	EA	DNR	Al	B**
1290	Dimethyl thiourea	5	EB	DNR	Al	B
1640	Ethyl thionocarbanilate	5	EA	DNR	Al	B
1501	p-Hydroxyacetophenone	5	EB	DNR	Al	B
1501	p-Hydroxyacetophenone	5	EA	DNR	Al	B
1307	2-Hydroxypropyl carbani- late	5	EB	DNR	Al	B*
888	Methallyl carbanilate	5	EB	DNR	Al	B**
1311	2-Methoxypropyl carbani- late	5	EB	DNR	Al	B**
1643	o-Phenylphenol	4	EB	DNR	Al	B**
1523	Polybor	5	EA	DNR	W	B
1028	Propyl carbanilate	5	EB	DNR	Al	B**
1642	Skinner Sound Delivery Gas (A volatile liquid)	50cc	EB	F	--	B
1359	Thioacetanilide	5	EB	DNR	Al	B**
912	2,4,5-Trichlorophenyl- alpha-chloro-propionate	5	NE	DNR	Al	B**
1308	2-Acetoxyethyl carbani- late	5	EB	DNR	Al	C*
1179	Actidione, Crystalline in 25% Geon	1000 ppm	EB	DNR	E (25% Geon)	C*
1179	Actidione, Crystalline in 12½% Geon	1000 ppm	EB	DNR	E (12½% Geon)	C*

Our Acces- sion No.	Chemical Used	Maximum Concen. <u>PERCENT</u>	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
639	Allyl carbanilate	5	EB	DNR / WWE	A1	C
1588	Allyl carbanilate	5	NE	DNR	WWE	C
1589	Allyl carbanilate Agr. Fung. #2 (in wax emul.)	5	EB	DNR	WWE	C**
1589	Allyl carbanilate	5	NE	DNR	WWE	C
1026	Allyl N-(2-pyridyl) carbamate	5	EB	DNR	A1	C*
1401	4-Aminobenzophenone	5	NE	DNR	O	C
1573	2-Amino-4-nitrophenol	5	EA	DNR	A1	C
1415	alpha-Styrylpyridine	5	EB	DNR	A1	C
1276	Benzene hexachloride, gamma isomer	5	EB	DNR	O	C
1192	1-Benzocypiperidine	5	EB	DNR	A1	C**
1337	Benzyl cyanide	5	EB	DNR	A1	C*
1331	Boric acid	5	EB	DNR	W	C
1331 & 3	Borix acid / urea	5	EB	DNR	W	C
1316	2-Bromethyl carbanilate	5	EB	DNR	A1	C
1606	Butyl p-hydroxybenzoate	5	EA	DNR	A1	C**
1566	Cadmium acetate	5	EA	DNR	WD	C**
889	2-Chlorallyl carbanilate	5	EB	DNR	A1	C**
909	5-Chloroanthranilic acid	5	EB	DNR	A1	C
1624	5-Chlorocarvacrol (Carva- sept)	5	EA	DNR	A1	C**
1665	3-Chloro-4-phenoxyaniline	5	EB	DNR	A1	C**
258	4-Chloro-3,5-xyleneol	5	EB	DNR	O	C**
1286	beta-(Cyanochlorovinyl) dimethyldithio-carbamate	5	EB	DNR	ALD	C**
1391	4-Cyclohexylcyclohexyl butyrate	5	NE	DNR	A1	C
910	x-(2-Cyclohexylphenoxy)- x-propanol	5	EB	DNR	A1	C
1268	N-Decyl-x-biphenylsulfona- mide	5	EB	DNR	ALD	C
1139	Dehydroacetic acid	5	EB	DNR	ALD	C**
1394	beta, p-dibromophenetole	5	NE	DNR	A1	C
902	1-(Diisopropylamino)-2- propanol	5	EB	DNR	A1	C
1309	2-Ethoxyethyl carbanilate	5	EB	DNR	A1	C*
879	Ethyl carbanilate	5	EB	DNR / WWE	A1	C*
1345	Ethyl cyanoacetate	5	EB	DNR	A1	C*
1476	Ethyl p-nitrocarbanilate	5	EA	DNR	A1	C
1482	4-Hydroxybenzophenone	5	EA	DNR	A1	C**
1390	p-Hydroxycaprophenone	5	EB	DNR	A1	C**
1390	p-Hydroxycaprophenone	5	NE	DNR	A1	C**
1126	2-(2-Hydroxyethoxy)ethyl carbanilate	5	EB	DNR	A1	C

Our Accession No.	Chemical Used	Maximum Concent. PERCENT	Ethylene Appli.	How Treated	Solvent Diluent	Results
1306	2-Hydroxyethyl carbanilate	5	EB	DNR	Al	C*
1499	p-Hydroxypropiophenone	5	EA	DNR	Al	C
1318	3-Hydroxypropyl carbanilate	5	EB	DNR	O	C**
1349	8-Hydroxyquinoline base tech.	5	EB	DNR	Al	C
1314	Methoxybutenyl carbanilate mixture	5	EB	DNR	Al	C**
1315	1-(2-Methoxyethyl)-3-phenylurea	5	EB	DNR	Al	C
888	Methylallyl carbanilate	5	EB	DNR	Al	C**
1027	Methyl carbanilate	5	EB	DNR	Al	C**
903	1,1'-Methylinodi-2-propanol	5	EB	DNR	Al	C
1458	5-Nitrofuraxyl chloroacetate	5	EB	DNR	O	C**
1478	N-Nitroso-N-phenylhydroxylamine, ammonium salt	5	EB	DNR	W	C
1292	N-(Oxydiethylene)benzothiazylsulfenamide	Saturated Sol.	EB	DNR	Al	C
1545	Paraldehyde	5	NE	DNR	Al	C
1269	o-Phenylacetanilide	5	EB	DNR	Al	C
1271	N-Phenylmaleamic acid	5	EB	DNR	ALD	C
1186	N-Phenylmaleimide	Saturated Sol.	EB	DNR	O	C**
1325	Phenylurea	5	EB	DNR	Al	C
1504	Pine Needle Oil Siberian	5	EA	DNR	Al	C
1523	Polybor	5	EB	DNR	W	C
710	Quercetin	1000 ppm	EB	DNR	W	C
1178	Sodium 2-hydroxybiphenyl	5	EB	DNR	W	C**
915	Styrene glycol phenyl ether	5	EB	DNR	Al	C**
1037	2,2'-Sulfonyldiethanol	5	EB	DNR	W	C
1229	Sodium 2-thiophenesulfonate	5	EB	DNR	W	C
1605	4,6,6-Trimethyl-1,3,6-thiazine-2-thiol	5	EA	DNR	Al	C
1536	Urea-boric acid, reaction product sample #1	5	EB	DNR	W	C
1536	Urea-boric acid, reaction product sample #1	5	NE	DNR	W	C
1324	Acetoacetanilide	5	EB	DNR	Al	D
1332	p-Aceto-m-trifluoromethyl-anilid-triphenylphosphonium chloride (Phosphon F)	5	EB	DNR	Al	D

Our Accession No.	Chemical Used	Maximum Concentration PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
1328	N-Acetylanthranilic acid	5	EB	DNR	Al	D
1199	Acetylene-morpholine- S reaction product	Saturated Sol.	EB	DNR	W	D
1127	Acridine orange	Saturated Sol.	EB	DNR	Al	D
1128	Acridine red	5	EB	DNR	Al	D
1215	Actidione, crude	250 ppm	EB	DNR	W	D**
1179	Actidione, Crystalline	10 ppm	NE	DNR	W	D**
1179	Actidione, Crystalline		EB	DNR	W	D**
1185	Allyl carbamate	5	EB	DNR	ALD	D
1408	Allyl carbamate	5	EA	DNR	W	D
1091	Allyl p-carbomethoxy-carbanilate	5	EB	DNR	O	D
1092	Allyl p-chlorocarbanilate	5	EB	DNR	Al	D**
1218	2-Allyl-4,6-dibromophenol	5	EB	DNR	Al	D**
1093	Allyl 2,5-dichlorocarbanilate	5	EB	DNR	Al	D**
1022	Allyl 2,4-dichlorophenoxy-propionate	5	EB	DNR	Al	D**
1097	Allyl N-methylcarbanilate	5	EB	DNR	Al	D**
1094	Allyl p-methylcarbanilate	5	EB	DNR	Al	D**
1090	Allyl N-beta-naphthylcarbamate	5	EB	DNR	Al	D
1095	Allyl o-nitrocarbanilate	5	EB	DNR	Al	D**
1219	o-Allyloxybenzaldehyde	5	EB	DNR	Al	D**
1220	p-Allyloxybenzaldehyde	5	EB	DNR	Al	D**
1221	4-Allyloxy-3-methoxybenzaldehyde	5	EB	DNR	Al	D*
1184	Allyl N-phenylcarbanilate	5	EB	DNR	ALD	D*
1183	Allyl p-phenylcarbanilate	5	EB	DNR	O	D
884	1-Allyl-3-phenylurea	5	EB	DNR	Al	D
1236	1-Allyl pyridinium bromide	5	EB	DNR	W	D
1235	1-Allylquinaldinium bromide	5	EB	DNR	W	D
1205	3-Allylsalicylaldehyde	5	EB	DNR	Al	D**
1096	Allyl p-sulfamylcarbanilate	5	EB	DNR	O	D
883	Allyl thionocarbanilate	5	EB	DNR	Al	D*
1224	Amine copper complex of alkenyl (C6-C8)-succinic acid	5	EB	DNR	W	D
1327	p-Aminacetophenone	5	EB	DNR	Al	D
708	2-(2-Aminoethoxy)ethanol	5	EB	DNR	Al	D
727	2-(2-Aminoethoxy)ethoxyethanol	5	EB	DNR	W	D

Our Acces- sion No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1353	o-Aminophenol	Satura- ted Sol.	EB	DNR	W	D
1334	Aminophylline USP	5	EB	DNR	W	D
1440	4-Amino-m-toluenesul- fonic acid	5	EB	DNR	WD	D
1238	Ammonium 2-nitrobutane- sulfonate	5	EB	DNR	W	D
1078	Ammonium Salt of ADS	5	EB	DNR	W	D
1472	Amyl carbanilate	5	EB	DNR	AL	D
1263	Amylchlorobiphenyl 1010	5	EB	DNR	AL	D
1264	x-Amyl-4,4'-dichloro- biphenyl	5	EB	DNR	AL	D**
1533	Amyl phenol - Reaction product of 1300	5	EA	DNR	WD	D
1284	Anilinemethyl dibutyl- dithiocarbamate	5	EB	DNR	AL	D
1514	Anise Oil USP	5	EA	DNR	AL	D*
1158	2,6-Anthraquinonedisul- fonic acid	5	EB	DNR	W	D
1459	Antibiotic XG	1000 ppm	NE	DNR	AL	D
1163	Antipyrine	5	EB	DNR	W	D
1367	Aspergilllic acid	1000 ppm	EB	DNR	AL	D
1367	Aspergilllic acid	1000 ppm	NE	DNR	AL	D
1278	Aureomycin HCL	1000 ppm	EB	DNR	W	D
1305	Bacillomycin B	1000 ppm	NE	DNR	AL	D*
1305	Bacillomycin B	1000 ppm	EB	DNR	AL	D
1275	Benzene hexachloride crude 12% gamma isomer	Satura- ted Sol.	EB	DNR	O	D
1335	Benzoin	Satura- ted Sol.	EB	DNR	AL	D
1381	1,3-Bis(2-benzothiazolyl- mercaptomethyl)urea	5	EB	DNR	ALD	D
1380	2-Benzothiazolyl thiol- benzoate	Satura- ted Sol.	EB	DNR	AL	D
1460	2-Benzothiazolyl thiofurcate	5	EB	DNR	ALD	D*
1291	Benzothiazyl dimethyl- dithiocarbamate	Satura- ted Sol.	EB	DNR	AL	D
1103	beta-Benzoylacrylic acid (cis-trans mixture)	5	EB	DNR	AL	D**
1134	beta-Benzoylacrylic acid	5	EB	DNR	AL	D**
1081	Benzylacetic acid	5	EB	DNR	AL	D**

Our Accession No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
1336	Benzyl alcohol, Tech.	5	EB	DNR	A1	D*
1125	o-Benzyl-p-chlorophenol	5	EB	DNR	A1	D**
1445	Benzyl disulfide	Saturated Sol.	EB	DNR	A1	D
1085	Benzyl phenyl sulfone	0.31	EB	DNR	O	D
1622	Benzyl thiobenzate	5	EA	DNR	A1	D
1152	Benzyl thiostearate	2	EB	DNR	WWE	D**
1638	Benzyltrimethylammonium fluorophosphate	5	EA	DNR	ALD	D
31	o-Biphenyl biguanide	5	EB	DNR	A1	D
1247	o-Biphenyl isocyanate	5	EB	DNR	A1	D
1144	3,3'-Biphtalide	Saturated Sol.	EB	DNR	A1	D
1496	m-Bromoacetophenone	5	EA	DNR	A1	D*
1495	p-Bromoacetophenone	5	EA	DNR	A1	D*
1646	6-Bromo-4-chloro-m-cresol	5	EA	DNR	A1	D**
916	5-Bromo-2,3-dihydro-2-methylbenzofuran	5	EB	DNR	A1	D**
1316	2-Bromoethyl carbanilate	5	EB	DNR	A1	D**
1543	Bromoform	5	EA	DNR	A1	D*
913	5-Bromo-2-methylbenzofuran	5	EB	DNR	A1	D
1581	o-Bromophenol	5	EA	DNR	A1	D**
1551	p-Bromophenol	5	NE	DNR	A1	D**
1044	1-(p-Bromophenyl)-2-thio- urea	Saturated Sol.	EB	DNR	A1	D
1399	delta-Bromovaleric acid	5	EB	DNR	A1	D**
1310	2-Butoxyethyl carbanilate	5	EB	DNR	A1	D**
232	3-Butoxypropionitrile	5	EB	DNR	A1	D
232	3-Butoxypropionitrile	5 gm.	EB	F	-	D
1212	N-Butyl-p-acetanisidide	5	EB	DNR	A1	D**
895	alpha-sec-Butylcaproic acid	5	EB	DNR	A1	D**
908	4-tert-Butyl-2-chlorophenyl 2-chlorovinyl ether	5	EB	DNR	A1	D
914	sec-Butyl crotonate	5	EB	DNR	A1	D**
1209	2-sec-Butyl-4,6-dichloro- phenol	5	EB	DNR	A1	D**
213	1-(1-iso-Butyl-4-ethyloctyl) 2-(1-ethylamyl) glyoxali- dine	5	EB	DNR	O	D**
1469	2-(tert-Butylmercapto) ethyl carbanilate	5	EB	DNR	A1	D
377	n-Butyl oxamate	5	EB	DNR	A1	D*
1111	alpha-(p-tert-Butylphenoxy) propionic acid	5	EB	DNR	A1	D**
906	4-tert-Butyl-2-phenyl- phenol	5	EB	DNR	A1	D*
1211	p-sec-Butylphenyl salicy- late	5	EB	DNR	A1	D

Our Accession No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
1480	4-tert-Butylphenyl salicylate	5	EA	DNR	Al	D
1157	iso-Butyl phosphate	5	EB	DNR	Al	D**
1189	Butyl thiolcarbanilate	5	EB	DNR	O	D
1196	iso-Butyl vanillate	5	EB	DNR	Al	D**
1467	Cabacide	1000 ppm	EA	DNR	Al	D
1491	Organic cadmium compound	Saturated Sol.	EA	DNR	W	D**
1549	Carbon tetrabromide	5	NE	DNR	Al	D**
1568	Carbon tetrachloride	50cc	EB	F	--	D
1620	Carvacrol	5	EA	DNR	Al	D**
1507	Chenopodium Oil N.F.	5	EA	DNR	Al	D*
1347	Chiniofon USP	Saturated Sol.	EB	DNR	W	D
1156	Chloral hydrate	5	EB	DNR	W	D*
1244	N-Chloro(benzenesulfonamide, sodium derivative, sesquihydrate)	5	EB	DNR	W	D
1339	Chlorobutanol hydrate USP	5	EB	DNR	Al	D
1038	Chloride of a polychloroaromatic quaternary base	5	EB	DNR	W	D
1531	Chlorinated dinitro benzene	5	EA	DNR	WD	D**
1277	Chlorinated paraffine wax amines	5	EB	DNR	Al	D
1689	Chloroacetaldehyde	5	EB	DNR	W	D
1541	m(o&p)-Chloroacetophenone	5	EA	DNR	Al	D*
1539	p-Chloroacetophenone	5	EB	DNR	Al	D*
1645	(3-Chloroallyl)benzene	5	EA	DNR	Al	D
1216	3-Chloroallyl phenyl ether	5	EB	DNR	Al	D**
1396	5-Chlorocanyl acetate	5	EB	DNR	Al	D*
1166	o-Chloroaniline	5	EB	DNR	O	D*
1016	R.F. of p-chloroaniline and chloroacetyl chloride	5	EB	DNR	ALD	D
1397	4-Chlorobutyl acetate	5	EB	DNR	Al	D*
1398	Bis(4-chlorobutyl)ether	5	EB	DNR	Al	D**
1237	7-Chloro-4-(4-diethylamino-1-methyl-butylamino)quinoline diphosphate (Aralen diphosphate)	5	EB	DNR	W	D
1088	4-(2-Chlorethyl morpholine, hydrochloride	5	EB	DNR	W	D**
1570	Chloroform	50cc	EB	F	--	D
1364	2-Chloro-3-hydroxy-1,4-naphthoquinone, copper salt	Saturated Sol.	EB	DNR	O / Al	D

Our Acces- sion No.	Chemical Used	Maximum Concen. <u>PERCENT</u>	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1363	2-Chloro-3-hydroxy-1,4-naphthoquinone	Satura- ted Sol.	EB	DNR	W	D
1317	3-Chloro-2-hydroxypropyl carbanilate	5	EB	DNR	AL	D**
1243	5-Chloro-7-iodo-8-quinolinol	5	EB	DNR	ALD	D
918	p-Chloroisobutyrophenone oxime	5	EB	DNR	AL	D
1621	2-Chloroisopropyl thiolacetate	5	EA	DNR	AL	D
1603	2-Chloroisopropyl thiolbenzoate	5	EA	DNR	AL	D
1151	Chloromethyl p-chloro-phenyl sulfone	Satura- ted Sol.	EB	DNR	O	D
917	p-Chlorophenetole	5	EB	DNR	AL	D*
1118	Chlorophenoxyacetic acid	5	EB	DNR	AL	D**
1481	Bis(p-chlorophenoxy) methane	5	EA	DNR	AL	D*
1208	1-(p-Chlorophenoxy)-2-methoxypropane	5	EB	DNR	AL	D**
1116	alpha-(o-Chlorophenoxy) propionic acid	5	EB	DNR	AL	D**
1466	2-Chloro-4-phenylacet-anilide	Satura- ted Sol.	EB	DNR	AL	D
305	o-Chlorophenyl allyl carbonate	1 1/2 gm.	EB	F	---	D**
919	p-Chlorophenyl chloroacetate	5	EB	DNR	AL	D**
1492	p-Chlorophenyl-p-chloro-benzenesulfonate	Satura- ted Sol.	EA	DNR	AL	D*
1015	1-(p-Chlorophenyl)-3,5-dimethyl-4-nitroscpyra-zole	5	EB	DNR	O	D
1697	Bis(p-chlorophenyl) iodonium chloride	5	EA	DNR	AL	D
1384	Chlorothymol, Thymol, alcohol-62%	1	EB	DNR	W	D
1341	Cinnamic acid	5	EB	DNR	AL	D
1511	Cinnamon Oil USP	5	EA	DNR	AL	D**
1193	1-Cinnamoylpiperidine	5	EB	DNR	AL	D*
1456	Citrinin	1000 ppm	NE	DNR	AL	D
1565	Cobaltous acetate	5	EA	DNR	WD	D*
122	Colloidal sulfur 1-400 in water	1-400	EB	DNR	W	D
1423	s-Collidine	5	EB	DNR	AL	D
1693	alpha-Conidendrin	5	EA	DNR	O	D
1515	Copaiba N. F.	5	EA	DNR	AL	D*

Our Access- sion No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1360	Copper anthranilate	Satura- ted Sol.	EB	DNR	O / Al	D
1175	Copper 2-benzothiazolyl oxide	Satura- ted Sol.	EB	DNR	Al	D
1050	Coumarin	5	EB	DNR	Al	D**
1009	Cupric chloranilate	5	EB	DNR	O	D
1342	Cyanacetamide	5	EB	DNR	W	D
1343	Cyanacetic acid	5	EB	DNR	W	D**
1101	3-Cyano-4,6-dimethyl-2- pyridone	5	EB	DNR	WD	D
1699	N,N-Bis(2-cyanoethyl)-DL- alanine	5	EA	DNR	W	D
1702	N-(2-Cyanoethyl)-DL-ala- nine	5	EA	DNR	W	D
1701	1-(2-Cyanoethyl)-DL-aspar- tic acid	5	EA	DNR	W	D
1698	N,N-Bis(2-cyanoethyl)-DL- aspartic acid	5	EA	DNR	Al	D
1705	N,N-Bis(2-cyanoethyl)-DL- methionine	5	EA	DNR	Al	D
1700	1-(2-Cyanoethyl)-L-pyro- glutamic acid	5	EA	DNR	W	D
1615	N-Cyclohexyl-2-benzothia- zolesulfenamide	5	NE	DNR	ALD	D
662	1,1'-(Cyclohexylimino)di- 2-propanol	5	EB	DNR	Al	D
1270	1-Cyclohexyl-3-octadecyl- urea	5	EB	DNR	ALD	D*
793	Cyclotene	5	EB	DNR	Al	D
1173	Decachlorobiphenyl	5	EB	DNR	WD	D*
1429	cis-Decahydroquinoline	5	EB	DNR	Al	D
1529	Diallylfumarate	1-5	EB	DNR	W	D*
672	Diallyl phosphite	5	EB	DNR	W	D**
1021	3,6-Diamino-acridine, di- hydrochloride, dihydrate	Satura- ted Sol.	EB	DNR	Al	D
1251	Diammonium phosphate	5	EB	DNR	W	D
287	Diaryl 3,3'-thiobis (thiolpropionimide hydrochloride)	Satura- ted Sol.	EB	DNR	Al	D
1404	1,3-Diantipyrylurea	5	NE	DNR	ALD	D
1265	x,x-Diamyl-4,4'-dichloro- biphenyl	5	EB	DNR	Al	D**
707	trans-Dibenzoylethylene	Satura- ted Sol.	EB	DNR	Al	D
1182	2,5-Di-tert-amylhydro- quinone	5	EB	DNR	Al	D
1180	2,5-Di-tert-butylhydro- quinone	5	EB	DNR	Al	D
1538	1,4-dibromobutene	5	EA	DNR	O	D

Our Acces- sion No.	Chemical Used	Maximum Concen. <u>PERCENT</u>	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
225	Dibutylphenols	5	EB	DNR	Al	D**
1407	2,3-Dichloroacetanilide	5	EB	DNR	Al	D
1540	3,4-Dichloroacetophenone	5	EA	DNR	Al	D
1419	2,4-Dichlorobenzoic acid	5	EB	DNR	Al	D**
1210	2,4'-Dichlorobenzohydrol	Satura- ted Sol.	EB	DNR	Al	D
1584	1,4-Dichlorobutane	50cc	EB	F	—	D
1414	3,4-Dichloro-5 (alpha- cyanobenzyl)-2(5)- furanone	5	EB	DNR	Al	D*
1382	Dichlorodibenzothiophene, crude	5	EB	DNR	O	D
1143	2,5-Dichloro-3,6-dihy- droxyquinone	Satura- ted Sol.	EB	DNR	W	D
1362	2,5-Dichloro-3,6-dihy- droxy-p-quinone, zinc salt (polymer)	5	EB	DNR	WD	D
1012	3,6-Dichloro-2,5-dimeth- oxybenzoquinone	5	EB	DNR	O	D**
1528	Dichlorodimethylsuccinate and Methylhydroxybenzoate	1-5	EB	DNR	W	D
1375	4,4'-Dichlorodiphenyl sulfone	Satura- ted Sol.	EB	DNR	Al	D
1273	Dichlorodiphenyl Tri- chloroethane, techni- cal DDT	5	EB	DNR	O	D
1129	3,4-dichlorofuoric acid	5	EB	DNR	Al	D**
1435	Dicyclohexylamine	5	EB	DNR	Al	D*
1131	Dichloromaleic acid	5	EB	DNR	W	D**
1047	2,3-Dichloro-1,4-naph- thoquinone	Satura- ted Sol.	EB	DNR	O	D
1439	1,2-Dichloro-4-nitro- benzene	5	EB	DNR	Al	D
1388	1,5-Dichloropentane	5	NE	DNR	Al	D
1413	3,4-Dichloro-5-phenacyl- 2(5)-furanone	5	EB S	DNR	O	D
1301	2-4-D Compound, contains sulfur	1000 ppm	EB	DNR	Al	D
1083	Dichlorophenoxybenzoic acid	5	EB	DNR	Al	D**
1114	gamma-(2,4-Dichloro- phenoxy)butyric acid	5	EB	DNR	Al	D**
1207	2,4-Dichlorophenyl chloroacetate	5	EB	DNR	Al	D**
1133	2,5-Dichloro-p-quinone	5	EB	DNR	O	D**
1302	Di Coco dimethyl ammonium chloride	5	EB	DNR	W	D

Our Accession No.	Chemical Used	Maximum Concn. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
1106	Dicyandiamide and formaldehyde, condensation product	5	EB	DNR	W	D
1107	Dicyandiamide, formaldehyde and an aromatic diamine, condensation product	5	EB	DNR	WD	D
1109	Dicyandiamide, formaldehyde and an aromatic mono primary amine, condensation product	5	EB	DNR	W	D
1056	Diethanolamine 2,4-Dichlorophenoxyacetate 37.3% Triethanolamine 2,4-Dichlorophenoxyacetate 23.2%	5	EB	DNR	W	D*
223	Diethylaminoethanol	5 gm. in 18 cu.ft.	EB	F	—	D
1475	Diethyl m-benzenedicarbanilate	5	EA	DNR	Al	D
1174	Diethyl dithiobis(thionoformate)	5	EB	DNR	Al	D**
1165	Diethylenetriamine	5	EB	DNR	W	D
1431	N ¹ , N ¹ -Diethyl-1,4-pentanediamine	5	EB	DNR	W	D
1436	Dihexylamine	5	EB	DNR	Al	D**
1161	2,3-Dihydro-1,4-phthalazine-1,4-dione,	Saturated Sol.	EB	DNR	O	D
907	2,4-Dihydroxybenzophenone, Disodium salt	5	EB	DNR	Al	D
1045	3,6-Dihydroxy-2,5-pyridinedimethanol,	5	EB	DNR	W	D
1366	x,x'-Dihydroxyoctachlorobiphenyl, dicuprous salt	5	EB	DNR	WD	D
1365	x,x'-Dihydroxyoctachlorobiphenyl, nitric acid oxidation product	5	EB	DNR	Al	D
1348	5,7-Diiodo-8-hydroxyquinoline	Saturated Sol.	EB	DNR	W	D
1242	5,7-Diiodo-8-quinolinol	5	EB	DNR	WD	D
900	1-Diisobutylamino-2-propanol	5	EB	DNR	Al	D
671	Diisopropyl benzyl di-butoxy ethoxy ethyl amine	5	EB	DNR	W	D**
1254	x,x-Diisopropylbiphenyl	5	EB	DNR	Al	D

Our Acces- sion No.	Chemical Used	Maximum Concen. <u>PERCENT</u>	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1623	Diisopropyl dithiobis (thionoformate)	5	EA	DNR	Al	D*
1013	Dimethylamine salt of dimethyl dithiocarbamate and tetrachloro-p-benzo- quinone, reaction product	5	EB	DNR	O / W	D
726	2-(2-Dimethylamino)ethoxy- ethanol	5	EB	DNR	W	D*
901	x-(x-Dimethylamino-x-pro- poxy)-x-propanol	5	EB	DNR	Al	D
1422	1,3-Dimethylamylamine	5	EB	DNR	Al	D
226	2,2-Dimethyl-4-chloro- methyl-dioxolane	5 gm.	EB	F	—	D*
899	beta, 4-Dimethylcyclo- hexanepropionic acid	5	EB	DNR	Al	D**
457	4-(3,4-Dimethylcyclo- hexyl)pyridine	5	EB	DNR	Al	D
1146	N, N-Dimethyldithiocar- banic acid and 1,3- dimethylolurea	5	EB	DNR	WD	D
405	2,6-Dimethyl-4-heptyl- pyridine	5	EB	DNR	Al	D
1590	Dimethylhydantoin	5	EA	DNR	W	D
1592	Dimethylhydantoin-formal- dehyde resin	5	EA	DNR	W	D
1048	N,N-Dimethyl-p-phenylene- diamine, monosulfate	5	EB	DNR	W	D*
1289	N,N'-Di-beta-naphthyl-di- ethylenetriamine	5	EB	DNR	ALD	D
1160	2,4-Dinitroaniline	Satura- ted Sol.	EB	DNR	O	D
1612	2,4-Dinitrophenol	Satura- ted Sol.	EA	DNR	Al	D**
1172	2-(2,4-Dinitrophenyl- mercapto)benzothiazole	5	EB	DNR	O	D
1206	2,4-Dinitrophenyl thiocyanate	Satura- ted Sol.	EB	DNR	Al	D**
1149	2,4-Dinitrophenyl thiocyanate	Satura- ted Sol.	EB	DNR	O	D
1443	s-Di-o-tolylthiourea and ethylene oxide	5	EB	DNR	Al	D
1288	Di-(oxydiethylene)thiura- monosulphide	Satura- ted Sol.	EB	DNR	Al	D
1344	Diphenylacetic acid	5	EB	DNR	Al	D*
1282	Di-(alpha-phenylethyl)-p- cresol	5	EB	DNR	Al	D
1279	Di-(alpha-phenylethyl) phenol	5	EB	DNR	Al	D

Our Accession No.	Chemical Used	Maximum Concentration	Ethylene Appli.	How Treated	Solvent or Diluent	Results
		PERCENT				
1691	Diphenyliodonium chloride	5	EA	DNR	ALD	D
438	Diphenyl isothiohydantoin	Saturated Sol.	EB	DNR	O	D
1403	1,3-Diphenyl-5-pyrazolone	5	NE	DNR	Al	D
1231	Disodium α -(4-ethyl-3-sulfophenyl)-, stearate	5	EB	DNR	W	D
231	Disodium 1,2-propanedithiocarbamate	5	EB	DNR	W	D
1225	Disodium tetrahydroxy, succinate	5	EB	DNR	WD	D
1614	2,2'-Dithiobis(4-aniline)	5	EA	DNR	Al.	D
1177	2,2'-Dithiobis(6-nitro-benzothiazole)	5	EB	DNR	O	D
1446	Dodecyl disulfide	5	EB	DNR	O	D**
904	Dodecylethylmethylsulfoniummethyl sulfate	5	EB	DNR	Al	D**
1153	Dodecyl thiostearate	2	EB	DNR	WWE	D*
214	3,4-Epoxy-1-butene	1 gm.	EB	F	--	D
1558	6-Epoxy-3-methyl-1,2,3,6-tetrahydrophthalonitrile	5	EA	DNR	Al	D
1393	1,2-Epoxyoctane	5	EB	DNR	Al	D
905	1,2-Epoxy-3-(o-toloxo)propane-	5	EB	DNR	Al	D**
1176	6-Ethoxy-2-mercaptobenzothiazole	Saturated Sol.	EB	DNR	Al	D
1041	Ethyl allyl, carbamate	5	EB	DNR	O	D**
236	2-(1-Ethylamyl)-2-imidazoline-ethanol residue and ethylene oxide	5	EB	DNR	Al	D
217	2-(1-Ethylamyl)-2-imidazoline-1-polyglycol	5	EB	DNR	W	D
1630	Ethyl butylcarbamate	5	EB	DNR	Al	D
1477	Ethyl 4-carbethoxycarbamate	Saturated Sol.	EA	DNR	Al	D
1042	Ethyl decyl-, carbamate	5	EB	DNR	O	D*
897	gamma-Ethyl-delta-methyl-caproic acid	5	EB	DNR	Al	D**
896	gamma-Ethyl-delta-methyl-enanthic acid	5	EB	DNR	Al	D**
1652	Ethyl dibutylcarbamate	5	EA	DNR	Al	D*
1604	Ethyl diethylcarbamate	5	EA	DNR	Al	D
1174	Ethyl diphenylcarbamate	5	EA	DNR	Al	D
1631	Ethyl dipropylcarbamate	5	EA	DNR	Al	D*
1171	Ethylene chlorobromide	5	EB	DNR	Al	D
121	Ethylene chlorohydrin	5 gms. in 18 cu.ft.	EB	F	--	D

Our Accession No.	Chemical Used	Maximum Concn. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
1525	Ethylene dichloride	50cc in 18 cu.ft.	EB	F	---	D
1525	Ethylene dichloride	5	EB	DNR	A1	D
1634	(Ethylenedinitrilo)tetraacetic acid (Sequestrene AA)	5	EA	DNR	WD	D
1704	4,4'-Ethylenedipyridine	5	EA	DNR	WD	D
1323	Ethyl fumaramate	5	EB	DNR	A1	D**
1322	Ethyl fumaranilate	5	EB	DNR	A1	D
407	3-Ethyl-6-heptylpyridine	5	EB	DNR	A1	D
1181	2-Ethylhexyl diphenyl phosphate	5	EB	DNR	ALD	D*
449	3-Ethyl-6-hexylpyridine	5	EB	DNR	A1	D
1040	Ethyl 2-hydroxyethylcarbamate	5	EB	DNR	W	D
1674	Ethylidene dichloride	5	EB	DNR	A1	D
1433	N-Ethylideneoctylamine	5	EB	DNR	A1	D**
1562	3-Ethylideneisophthalimidine	5	EA	DNR	A1	D
1628	Ethyl isopropylcarbamate	5	EA	DNR	A1	D
1203	p-(1-Ethyl-1-methylamyl)phenol	5	EB	DNR	A1	D**
1473	Ethyl N-methylcarbanilate	5	EA	DNR	A1	D*
233	5-Ethyl-alpha-methyl-4-propyl-m-dioxane-2-methylamine	5	EB	DNR	A1	D
1629	Ethyl 4-morpholinecarboxylate	5	EA	DNR	W	D
1572	Ethyl nicotinate	5	EA	DNR	A1	D*
1406	Ethyl 5-nitro-2-furoate	Saturated Sol.	EB	DNR	A1	D**
409	3-Ethyl-6-nonylpyridine	5	EB	DNR	A1	D
408	3-Ethyl-6-octylpyridine	5	EB	DNR	A1	D
1321	Ethyl oxanilate	Saturated Sol.	EB	DNR	A1	D
1346	Ethyl phenylacetate	5	EB	DNR	A1	D*
1102	Ethyl phenylglyoxylate	5	EB	DNR	A1	D**
1164	Ethyl 1-piperidinecarboxylate	5	EB	DNR	O	D
1627	Ethyl propylcarbamate	5	EA	DNR	A1	D
1470	2-(Ethylsulfonyl)ethyl carbanilate	Saturated Sol.	EB	DNR	A1	D
1619	4-Ethyl-2-thiazolethiol and 4,5-Dimethylthiazolethiol	5	EA	DNR	A1	D
1198	Ethyl vanillate	5	EB	DNR	A1	D**
1666	Formamide	5	EB	DNR	W	D
1667	Formanilide	5	EB	DNR	A1	D**
1593	Furan	50cc	EB	F	---	D

Our Acces- sion No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1392	2-Furoic acid	5	NE	DNR	A1	D**
1140	2-Furylacrylic acid	5	EB	DNR	A1	D**
1361	1,5-Di-(2-Furyl)-1,5-hexadiene-3,4-dione	Satura- ted Sol.	EB	DNR	A1	D
212	2-(2-Furyl)-2-imidazoline-1-ethanol	Satura- ted Sol.	EB	DNR	W	D
1455	Gladiolic acid	1000 ppm	NE	DNR	A1	D
1453	Gliotoxin	1000 ppm	NE	DNR	A1	D**
1703	4,4',4"-Glyceryltripyridine	5	EA	DNR	A1	D
230	Glycidol	5	EB	DNR	W	D
230	Glycidol	5 gm.	EB	F	--	D
1696	Glycocyanine	Satura- ted Sol.	EA	DNR	W	D
1452	Griseofulvin ("Curling factor")	1000 ppm	NE	DNR	A1	D
1061	Guanidine carbonate	5	EB	DNR	W	D**
1434	Heptadecylamine	5	EB	DNR	A1	D**
1138	2-Heptadecenyl-4,5-dihydroimidazole	5	EB	DNR	A1	D**
1266	Heptaethylene glycol dicarbanilate	5	EB	DNR	A1	D
1437	N-Heptylaniline	5	EB	DNR	A1	D**
1695	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4,5,8-dimethanonaphthalene (Dieldrin)	Satura- ted Sol.	EA	DNR	A1	D
1692	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-dimethanonaphthalene (Aldrin)	5	EA	DNR	A1	D
1145	Hexadecyldimethyl-2-thenyl-ammonium chloride	5	EB	DNR	A1	D**
1582	Hexamethylenetetramine	5	EB	DNR	W	D**
1387	Humulon (o-phenylenediamine salt)	1000 ppm	NE	DNR	A1	D
1387	Humulon (o-phenylenediamine salt)	1000 ppm	EB	DNR	A1	D
1522	N-(2-Hydroxyethyl)acetanilide	5	EA	DNR	A1	D**
1108	2-Hydroxyethyl-dimethyl-tetradecylammonium chloride	5	EB	DNR	W	D**

Our Acces- sion No.	Chemical Used	Maximum Concen. <u>PERCENT</u>	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1191	2-Hydroxyethyl thiolcar- banilate	5	EB	DNR	A1	D**
1609	3-Hydroxy-2-naphthoic acid	5	EA	DNR	A1	D
1625	1-(alpha-Hydroxypropionyl) piperidine	5	EA	DNR	A1	D
318	8-Hydroxyquinoline, De- rivative	Satura- ted Sol.	EB	DNR	A1	D
1352	8-Hydroxyquinoline benzoate	5	EB	DNR	A1	D
1350	8-Hydroxyquinoline-5- sulphonic acid	Satura- ted Sol.	EB	DNR	A1	D
725	2,2'-Iminobis(2-ethoxy- ethanol)	5	EB	DNR	W	D
1039	Inositol (mesc)	5	EB	DNR	W	D
1351	7-Iodo-8-hydroxyquino- line-5-sulphonic acid	Satura- ted Sol.	EB	DNR	W	D
1550	Iodoacetic acid	5	NE	DNR	A1	D**
1544	Iodobenzene	5	EA	DNR	A1	D*
1553	o-Iododiphenyl	5	EA	DNR	A1	D
1554	p-Iododiphenyl	Satura- ted Sol.	EA	DNR	A1	D
1546	Iodoform	5	NE	DNR	A1	D
1552	o-Iodophenol	5	EA	DNR	A1	D**
1690	Bis(p-iodophenyl)iodonium chloride	5	EA	DNR	ALD	D
1471	Isobutyl carbanilate	5	EB	DNR	A1	D
1633	p-Isopropoxydiphenylamine	5	EA	DNR	A1	D
1204	4-Isopropylcyclohexanol	5	EB	DNR	A1	D**
1057	Isopropyl 2,4-dichloro- phenoxyacetate	5	EB	DNR	A1	D**
1488	p,p'-Isopropylidenebi- phenol (Bisphenol A)	5	EA	DNR	A1	D**
1490	4,4'-Isopropylidenebis(2- isopropylphenol)	5	EA	DNR	A1	D
1493	4,4'-Isopropylidenebis(2- phenylphenol)	5	EA	DNR	A1	D
1489	4,4'-Isopropylidenedi-o- cresol (Bisphenol C)	5	EA	DNR	A1	D**
1659	Isopropyl methylthionc- carbamate	5	EB	DNR	O	C
1089	1,2-Bis(isopropylsulfonyl) ethane	5	EB	DNR	O	D
1104	Isopropyl 2,4,5-trichloro- phenoxyacetate	5	EB	DNR	A1	D**
1426	Isoquinoline	5	EB	DNR	A1	D**
1608	Isosafrole	Satura- ted Sol.	EA	DNR	A1	D
1512	Juniper tar USP	5	EA	DNR	A1	D**

Our Accession No.	Chemical Used	Maximum Concent. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
	KADS (See Potassium acid aldehydesulfonate)					
1065	Lauryl pyridinium chloride	5	EB	DNR	A1	D**
1502	Lavender oil USP	5	EA	DNR	A1	D*
1386	Lupulin	1000 ppm	EB	DNR	A1	D
1386	Lupulin	1000 ppm	NE	DNR	A1	D
222	2,4-Lutidine	5 gm.	EB	F	--	D
1569	Menthol USP Laevo	5	EA	DNR	A1	D*
38	2-Mercaptoethanol	5	EB	DNR	A1	D
1099	2-Mercaptoethyl carboxylate	5	EB	DNR	A1	D**
306	Mercaptothiazoline and tetramethylthiurandi-sulfide; Reaction product	5	EB	DNR	F	D
1194	2-Methoxybenzoic acid	5	EB	DNR	A1	D*
1457	2-Methoxyethyl-5-nitro-furan	5	EB	DNR	A1	D**
1315	1-(2-Methoxyethyl)-3-phenylurea	5	EB	DNR	A1	D
1043	Methylal	5	EB	DNR	W	D
1357 in 10% carbo-wax 4000	2-Methyl-4-amino-1-naphthol hydrochloride	10,000 ppm	EB	DNR	Carbo-wax in water	D*
1357 in 10% carbo-wax 1500	2-Methyl-4-amino-1-naphthol hydrochloride	10,000 ppm	EB	DNR	Carbo-wax in water	D*
1420	1-Methylamylamine	5	EB	DNR	A1	D
1424	Bis(alpha-methylbenzyl) disulfide	5	EB	DNR	O	D
1610	beta-Methyl caproic acid	5	EA	DNR	A1	D**
1626	Methyl carboxate	5	EA	DNR	W	D
1573	Methylurea chloride	5000		F	--	D
1542	2,2'-Methylenbis(4-chloro-6-isopropylphenol)	5	EA	DNR	A1	D**
1378	2,2'-Methylenbis(4-chlorophenol)	5	EB	DNR	A1	D
1494	2,4'-Methylenbis(4-chlorophenol)	5	EA	DNR	A1	D**
1376	2,2'-Methylenbis(4,6-dichlorophenol)	5	EB	DNR	O	D
1217	N,N'-methylenebis(paraanisidine)	5	EB	DNR	A1	D
219	5-(Methylenedimethyl) dihydro-1,3,5-dithiazine	5	EB	DNR	W	D
1595	2-Methylfuran	5000	EB	F	--	D

Our Accession	Chemical Used	Maximum Concn. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
1084	2,2'-Methyliminodip-ethanol, diacetate	5	EB	DNR	O	D**
220	4-Methyl-1-2-methyl-2-isobutyl dioxolane-1,3	5 gm. in 18 cu.ft.	EB	F	---	D*
478	Methyl alpha-naphthaleneacetate	5	EB	DNR	Al	D*
365	2-Methyl-6-octylpyridine	5	EB	DNR	Al	D
364	2-Methyl-6-octylpyridine propionate	5	EB	DNR	Al	D
456	4-(2-Methyloctyl)pyridine	5	EB	DNR	Al	D
1067	2-Methyl-2,4-pentanediol	5	EB	DNR	Al	D*
1329	3-Methyl-1-phenyl-5-pyrazolone	Saturated Sol.	EB	DNR	Al	D
1465	1-Methyl-4-(1H)-quinolinethione	5	EB	DNR	ALD	D
1597	2-Methyltetrahydrofuran	50cc	EB	F	---	D
1564	Methyl(tetrahydrofurfuryl) ammonium methyl (tetrahydrofurfuryl) dithiocarbamate	5	EA	DNR	Al	D
1283	Monobenzothiazyl ether of hydroquinone	5	EB	DNR	Al	D
1377	Monochlorinated dibenzothiophene (mixture)	5	EB	DNR	O	D*
1591.	Monomethyloldimethylhydantoin	5	EA	DNR	Al	D
1281	Mono-(alpha-phenylethyl)-p-cresol	5	EB	DNR	Al	D**
1712	Monocurea phosphate	5	EB	DNR	W	D
1141	Mucochloric acid	5	EB	DNR	W	D**
1451	Mycophenolic acid	1000 ppm	NE	DNR	Al	D
477	alpha-Naphthaleneacetic acid	1	EB	DNR	Al	D
1223	Naphthenic acid	5	EB	DNR	W	D**
1115	2-Naphthoxyacetic acid	5	EB	DNR	Al	D**
444	beta-Naphthylamine	5	EB	DNR	Al	D*
1285	N-beta-Naphthylaminoethyl-ethylene-thiourea	5	EB	DNR	ALD	D
1187	Nicotinic acid	5	EB	DNR	WD	D
1500	m-Nitroacetophenone	5	EA	DNR	ALD	D*
1498	p-Nitroacetophenone	5	EA	DNR	Al	D**
1532	Nitrochlorosulfide Reaction product of 1300	5	EA	DNR	WD	D
1412	5-Nitro-2-furancarboxylic acid	5	EB	DNR	Al	D
1613	o-Nitrophenol	5	EA	DNR	Al	D

Our Accession No.	Chemical Used	Maximum Concn. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
1449	Bis(o-nitrophenyl) disulfide	5	EB	DNR	WD	D**
1497	m-Nitropropylphenone	Saturated Sol.	EA	DNR	O	D
1142	beta-Nitrostyrene	5	EB	DNR	A1	D**
1430	Nonylamine	5	EB	DNR	A1	D**
393	2-(5-Nonyl)pyridine	5	EB	DNR	A1	D
362	4-Nonylpyridine	5	EB	DNR	A1	D
395	4-(5-Nonyl)pyridine	5	EB	DNR	A1	D
411	4-Nonylpyridine cupric acetate	5	EB	DNR	A1	D
366	4-Nonylpyridine cupric propionate	2½	EB	DNR	A1	D
412	4-(5-Nonyl)pyridine nickel chloride	Saturated Sol.	EB	DNR	A1	D
410	4-Nonylpyridine zinc acetate	5	EB	DNR	A1	D
1136	Octachlorobiphenylquinone	5	EB	DNR	A1	D**
1602	Octylated and arylalkylated diphenylamines	5	EA	DNR	A1	D
362	4-Octylpyridine	5	EB	DNR	A1	D
1515	Oil Cedar leaf USP	5	EA	DNR	A1	D**
1519	Oil of Cloves	5	EA	DNR	A1	D*
1518	Oil Lemon USP	5	EA	DNR	A1	D*
1517	Oil Orange	5	EA	DNR	A1	D*
1516	Oil of tansy	5	EA	DNR	A1	D**
1503	Oil Wormwood American	5	EA	DNR	A1	D*
1234	5,5'-Oxydianiline, dihydrochloride	5	EB	DNR	W	D
1402	p,p'-Oxydiformanilide	5	EB	DNR	O	D
1405	delta, delta'-Oxydivaleronitrile	5	EB	DNR	A1	D
1274	Parathion, Technical (97% active)	5	EB	DNR	A1	D
1383	Patulin	1000 ppm	EB	DNR	A1	D**
1383	Patulin	1000 ppm	NE	DNR	A1	D**
1037	Pentachlorodihydroxy-triphenylmethane sulfonate	5	EB	DNR	W	D
1576	Pentachloroethane	5	EA	DNR	A1	D
1576	Pentachloroethane	50cc	EB	F	---	D
1017	2,2,3,4,4-Pentachloro-1-ketotetrahydronaphthalene	5	EP	DNR	ALD	D*
413	Pentachlorophenyl acetate	Saturated Sol.	EB	DNR	A1	D
1598	1,5-Pentanediol	5	EA	DNR	W	D**

Our Acces- sion No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
1505	Peppermint oil USP	5	EA	DNR	Al	D*
1575	Perchloroethylene	5	EA	DNR	Al	D
1575	Perchloroethylene	50cc	EB	F	--	D
1100	2-Phenethylmercaptoethyl carbanilate	5	EB	DNR	Al	D
1122	Phenoxyacetic acid	5	EB	DNR	Al	D**
1082	o-Phenoxybenzoic acid	5	EB	DNR	Al	D**
1355	Phenylacetamide	5	EB	DNR	Al	D
1356	Phenylacetic acid	5	EB	DNR	Al	D**
911	3-Phenylcatechol	5	EB	DNR	Al	D
1147	2-Phenyl-4,5-dichloro-3- pyridazone	Satura- ted Sol.	EB	DNR	O	D
1448	Phenyl disulfide	Satura- ted Sol.	EB	DNR	O	D**
1400	N,N'-p-phenylenediaceta- mide	5	EB	DNR	Al	D
1338	beta-Phenylethylamine	5	EB	DNR	Al	D*
1248	p-Phenylformanilide	Satura- ted Sol.	EB	DNR	Al	D
664	1,1'-(Phenylimino)-di-2- propanol	5	EB	DNR	Al	D**
1070	Phenylmercaptoacetic acid	5	EB	DNR	Al	D**
1637	N-Phenylnaphthylamine	5	EA	DNR	ALD	D
1556	3-Phenylsalicylic acid	5	EA	DNR	Al	D**
1535	Copper 3-Phenylsalicylate	5	EA	DNR	Al	D**
1190	Phenyl thiolcarbanilate	5	EB	DNR	O	D**
1326	1-Phenyl-2-thiourea	Satura- ted Sol.	EB	DNR	Al	D
1086	Phenyl p-tolyl sulfone	0.31	EB	DNR	O	D
1296	Pine oil, destructively distilled	20	EB	DNR	Al	D**
992 1/	Plastic Compound "FL"	20	EB	DNR	W	D
1058 1/	Plastic Compound "FL-2"	20	EB	DNR	W	D
1373 1/	Plastic Compound "FL-3"	1-5	EB	DNR	W	D
1374 1/	Plastic Compound "FL-4"	1-5	EB	DNR	W	D
1261	Polyamylbiphenyl 2000	5	EB	DNR	Al	D**
1524	Polybor chlorate	5	EA	DNR	WD	D**
1252	Polyethylbiphenyl 2100	5	EB	DNR	Al	D
1035	Polyethylene ether of fatty acid	5	EB	DNR	W	D
1036	Polyethylene ether of fatty alcohol	5	EB	DNR	W	D
1032	Polyethylene glycol-mono- iso-octyl phenyl ether	5	EB	DNR	W	D
227	Polyethylene polysteara- mide	5	EB	DNR	W	D

1/ Proprietary compounds

Our Accession No.	Chemical Used	Maximum Concn. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
1256	Polyethylpolyisopropyl-biphenyl 2131	5	EB	DNR	AL	D
237	Polystyrene polysulfide	5	EB	DNR	W	D
1034	Polyglycol ester of long chain acid G. oil soluble	5	EB	DNR	AL	D
1255	Polyisopropylbiphenyl 3000	5	EB	DNR	AL	D
1259	Polyisopropylterphenyl 2500	Saturated Sol	EB	DNR	AL	D
1072	KADS-Potassium acid aldehyde sulfonate KADS	Saturated Sol	EB	DNR	W	D
1076	KADS-Sec. amyl benzene	5	EB	DNR	WD	D*
1075	KADS-Betanaphthol	5	EB	DNR	W	D
1071	KADS-2,4-dichlorophenol	5	EB	DNR	AL	D**
1601	Potassium fluophosphate (K ₂ PO ₃ F)	5	EA	DNR	W	D
1077	Potassium methionate	5	EB	DNR	W	D
1074	KADS-Monochloro	5	EB	DNR	W	D
1073	KADS-Naphthalene	5	EB	DNR	W	D
1069	KADS-Thiophenol	5	EB	DNR	ALD	D**
1200	KADS-trichlorophenol, reaction product	5	EB	DNR	W	D
1079	KADS-urea	5	EB	DNR	WD	D
1571	Propionitrile	5	EA	DNR	W	D
1484	Propiophenone oxime	5	EA	DNR	AL	D**
398	alpha-Iso-Propylcaproic acid	5	EB	DNR	AL	D**
229	3-Propyl-5-cyclohexanone-1, 2-dicarboxylic acid	5	EB	DNR	W	D
59	Propylene glycol oleate	5	EB	DNR	AL	D
16	iso-Propyl formate	5	EB	DNR	AL	D**
1197	n-Propyl vanillate	5	EB	DNR	AL	D**
1635	Furidine fluophosphate	5	EA	DNR	WD	D
1585	Fyrrole	5	EA	DNR	AL	D
1585	Fyrrole	50cc	EB	F	--	D**
710	Quercetin	1000 ppm	NE	DNR	W	D
710	Quercetin	1000 ppm	EB	DNR	W	D
1432	Quinaldine	5	EB	DNR	AL	D*
1694	Quinhydrone	5	EA	DNR	AL	D
1427	Quinoline	5	EB	DNR	AL	D**
1479	8-Quinolinel (Milmer TD)	5	EB	DNR	AL	D**
1534	Quinone type - Reaction product of 1300	5	EA	DNR	WD	D**
1509	Rose Geranium Oil reunion	5	EA	DNR	AL	D*

Our Accession No.	Chemical Used	Concen. PERCENT	Extraction Appli.	How Treated	Solvent or Diluent	Re- sults
1521	Salicylamide	5	EA	DNR	Al	D
1506	Sandalwood Oil N. F. East India	5	EA	DNR	Al	D*
1508	Sassafras Oil USP	5	EA	DNR	Al	D*
1063	Semicarbazide hydro- chloride	Satura- ted Sol.	EB	DNR	Al	D**
1031	Sodium alkyl naphthalene- sulfonate. Corikal B High Concentrate	5	EB	DNR	W	D
1385	Sodium bisulphate	5	EB	DNR	W	D
1340	Sodium cinchophen	Satura- ted Sol.	EB	DNR	W	D
1369	Sodium copper poly- phosphate	5	EB	DNR	WD	D
1371	Sodium copper zinc polyphosphate	5	EB	DNR	WD	D
474	Sodium dehydroacetate	5	EB	DNR	W	D
1055	Sodium diacetate	10	EB	DNR	W	D*
1241	Sodium 2-6-Diamino-4-s- triazinyl-mercapto acetate	5	EB	DNR	WD	D
1024	Sodium 2,4-dichlorophenoxy- acetate, monohydrate	5	EB	DNR	W	D
1648	Sodium diethyldithiocar- bamate	Satura- ted Sol.	EA	DNR	W	D
1233	Sodium alpha, alpha- diphenyl-glycine	5	EB	DNR	W	D
1228	Sodium ethyl xanthate	5	EB	DNR	W	D**
1618	Sodium fluophosphate (Na ₂ PO ₃ F)	5	EA	DNR	W	D**
1239	Sodium 8-hydroxy-x-hydroxy- mercuri-5-quinolinesul- fonate	2½	EB	DNR	W	D
1240	Sodium 8-hydroxy-y-hydroxy- mercuri-5-quinolinesul- fonate	2½	EB	DNR	W	D
1011	Sodium mercaptobenzothia- zole and tetrachloro-p- benzoquinone, reaction product	5	EB	DNR	O / ALD	D
1030	Sodium salt of condensation product of naphthalenesul- fonic acid. Blancol conc. powder	5	EB	DNR	W	D
1354	Sodium phenobarbital USP	5	EB	DNR	W	D
1232	Sodium deriv. of phenyl glyoxal oxime	5	EB	DNR	W	D

Our Accession No.	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Results
204	40% organic sulfonate, 60% sodium sulfate	5	EB	DNR	W	D
1230	Sodium 5-tert-butyl-2-thiophenesulfonate	5	EB	DNR	WD	D
1530	Sodiumtrifluoroacetate	15.6	EB	DNR	W	D
1148	Sodium zinc polyphosphate	5	EB	DNR	WD	D
1370	Sodium Zinc polyphosphate	5	EB	DNR	WD	D
235	Sorbic Acid	5	EB	DNR	Al	D
1064	Sorbitol laurate	5	EB	DNR	Al	D*
1018	1-(p-Sulfamylphenyl)-3,5-dimethyl-4-nitrosopyrazol	5	EB	DNR	ALD	D
1272	4,4'-Sulfonylbis(2-chlorophenol)	5	EB	DNR	Al	D
1373	2,2'-Sulfonylbis(4-chlorophenol)	5	EB	DNR	Al	D**
1051	c,p'-Sulfonyldiphenol	5	EB	DNR	Al	D
1052	p,p'-Sulfonyldiphenol	5	EB	DNR	Al	D*
1416	Succinic anhydride	5	EB	DNR	WD	D
1226	Tartar emetic	5	EB	DNR	W	D
1250	Terphenyls, mixed isomers	5	EB	DNR	ALD	D
1010	Tetrachloro-p-benzoquinone and ammonium dithiocarbamate, reaction product	5	EB	DNR	O / ALD	D**
1577	Tetrachloroethane	5	EA	DNR	Al	D
1577	Tetrachloroethane	50cc	EB	F	--	D
1019	Tetrachlorohydroquinone, cuprous salt	5	EB	DNR	ALD	D
1636	Tetraethylammonium fluophosphate	5	EA	DNR	WD	D
1425	Tetraethylenepentamine	5	EB	DNR	W	D*
1596	Tetrahydrofuran	50cc	EB	F	--	D
1066	Tetrahydrofurfuryl alcohol	5	EB	DNR	Al	D
1162	1,2,3,4-Tetrahydro-6-methoxyquinoline	Saturated Sol.	EB	DNR	Al	D**
1428	1,2,3,4-Tetrahydroquinoline	5	EB	DNR	Al	D*
1287	Tetramethylenethiuramdisulphide	5	EB	DNR	ALD	D*
1033	Tetrasodium salt of ethylenediaminetetraacetic acid	5	EB	DNR	W	D
1447	2-Thienyl disulfide	5	EB	DNR	O	D**
1135	2-Thienylmalonitrile	Saturated Sol.	EB	DNR	Al	D**
1441	2-Thiazoline-2-thiol ethylene oxide reaction product	5	EB	DNR	Al	D
1130	beta-(2-Thienyl)acrylic acid	5	EB	DNR	Al	D**

Our Acces- sion	Chemical Used	Maximum Concen. PERCENT	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
851	Thioacetic acid	5	EB	DNR	A1	D*
1053	2-Thiobarbituric acid	5	EB	DNR	WD	D
1059	m-Thiocresol	5	EB	DNR	A1	D**
1060	o-Thiocresol	5	EB	DNR	A1	D**
1319	2-Thiocyanoethyl carbani- late	5	EB	DNR	A1	D**
852	Thiophenol	5	EB	DNR	A1	D**
1054	Thiosalicylic acid	5	EB	DNR	A1	D**
1450	N,N'-Di-(o-biphenyl) thiourea	5	EB	DNR	A1D	D
1520	Thymol	5	EA	DNR	A1	D**
1607	p-Toluic acid	5	EA	DNR	A1	D
1014	1-p-Tolyl-3,5-dimethyl-4- nitrosopyrazole	5	EB	DNR	O	D
1526	Trichlorethane	5	EB	DNR	A1	D
1574	Trichloroethylene	5	EA	DNR	A1	D
1573	Trichloroethylene	50cc	EB	F	--	D
1113	2,4,6-Trichlorophenoxy- acetic acid	1000 ppm	NE	DNR	A1	D*
1113	2,4,6-Trichlorophenoxy- acetic acid	Satura- ted Sol.	EB	DNR	A1	D**
1112	alpha-(2,4,5-Trichloro- phenoxy)propionic acid	5	EB	DNR	A1	D**
920	2,4,5-Trichlorophenyl benzoate	Satura- ted Sol.	EB	DNR	A1	D
1214	2,4,5-Trichlorophenyl chloroacetate	Satura- ted Sol.	EB	DNR	A1	D**
211	2,2,3-Trichloropropioni- trile	5 gm.	EB	F	--	D*
1132	N-2,6-Trichloroquinonimine	5	EB	DNR	A1	D**
1201	x-Trichloro-x-dinitroben- zene	Satura- ted Sol.	EB	DNR	A1	D**
1202	x-Trichloro-x-nitroben- zene	5	EB	DNR	A1	D**
1438	Tridecanenitrite	5	EB	DNR	A1	D*
1421	Triethylenetetramine	5	EB	DNR	W	D
1661	4,4,4-Trifluoro-1-(2- thienyl)-1,3-butanedione	5	EB	DNR	A1	D**
1417	4,4,6-Trimethyl-3,4-dihy- dro-1,3,2-oxazine-2-thione	5	EB	DNR	WD	D
1418	4,4,6-Trimethyl-3,4-dihy- dro-1,3,2-thiazine-2- thione	5	EB	DNR	WD	D
4	5 parts trimethyloctade- cenyl; 2 parts trimethyl- hexadecyl; 3 parts tri- methyloctadecadienyl ammonium chlorides	5	EB	DNR	W	D*

Our Acces- sion No.	Chemical Used	Maximum Concen. <u>PERCENT</u>	Ethylene Appli.	How Treated	Solvent or Diluent	Re- sults
8	1 part trimethyloctadecyl; 1 part trimethylhexadecyl; 2 parts trimethyloctade- cetyl ammonium chloride	5	EB	DNR	W	D*
1068	Trimethyl octadecyl ammo- nium chloride-33% Sodium chloride-17% Water-50%	5	EB	DNR	W	D*
1159	1,3,5-Trinitrobenzene	Satura- ted Sol.	EB	DNR	Al	D**
1611	1,3,5-Trinitrobenzene	5	EA	DNR	Al	D
1280	Tri-(alpha-phenylethyl) phenol	5	EB	DNR	Al	D
1062	Triphenylmethyl ammonium iodide	Satura- ted Sol.	EB	DNR	Al	D*
1227	Tris(2-hydroxyethyl) sulfonium chloride	5	EB	DNR	W	D
1454	Viridin	1000 ppm	NE	DNR	Al	D
1510	Wintergreen Leaf oil USP	5	EA	DNR	Al	D**
1424	2,5-Xylidine	5	EB	DNR	Al	D**
1567	Zinc acetate	5	EA	DNR	WD	D
1293	Zinc diethyldithiocar- bamate	5	EB	DNR	WD	D
1295	Zinc dimethyldithiocar- bamate-amyl amine	5	EB	DNR	WD	D
1294	Zinc dithiofurcate-cyclo- hexylamine	5	EB	DNR	WD	D